

U.S. Census Bureau
Control Instruments - 2007
MA334C(07)
Issued June 2008

Address inquiries concerning these data to Consumer Goods Industries Branch, U.S. Department of Commerce, Census Bureau, Manufacturing and Construction Division, Washington, DC 20233-6900, or call Michael D. Perkinson, 301-763-4828.

These data are also available online through STAT-USA by subscription. For further information, visit <http://www.stat-usa.gov/> or call 1-800-STAT-USA.

Table 1. Value of Shipments of Control Instruments: 2007 and 2006
[Millions of dollars]

Product class code	Product description	2007		2006
3345120	Controls for monitoring residential and commercial environments.....	2,120.0	r/	2,054.2
3345130	Process control instruments.....	7,496.6		7,279.4
3353131	Power circuit breakers.....	600.8		576.2
3353133	Low voltage panelboards, distribution boards, and other switching and interrupting devices.....	2,725.7		2,550.4
3353135	Fuses and fuse equipment.....	370.7		364.5
3353137	Molded case circuit breakers.....	1,250.0	r/	1,142.6
3353139	Ducts, 1,000 volts and under.....	394.1	r/	304.5
335313A	Switchgear (except ducts).....	3,090.8	r/	2,944.7
3353141	Relays, general purpose.....	558.8	r/	617.7
3353143	Specific-purpose industrial controls.....	3,179.9		2,895.7
3353146	General-purpose industrial controls.....	3,709.5		3,626.6
3353147	Motor controller accessories and parts for industrial controls.....	286.9		358.3

r/Revised by 5 percent or more from previously published data.

Table 2. Shipments of Control Instruments: 2007 and 2006
[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2007			2006		
			Quantity		Value	Quantity		Value
3345120	Controls for monitoring residential and commercial environments.....	99	(X)	a/	2,119,985	(X)	r/	2,054,166
	Automatic controls of the type principally used as components of air-conditioning, refrigeration, and comfort heating, including pneumatic controls:							
3345120102	Temperature responsive (thermostats).....	36	b/	26,168	b/ 317,925	a/ 27,847	a/	368,073
3345120115	Igniters.....	6		16,056	95,332	22,572		129,109
3345120221	Computerized energy control systems for buildings 1/.....	15		793,671	462,387	722,120	r/	374,646
3345120224	Other automatic controls.....	56	(X)		682,500	(X)	r/	631,879
3345120225	Temperature responsive control for major appliances.....	10		82,450	174,864	86,666		176,848
3345120227	All other controls for appliances.....	11		45,998	193,279	46,496		196,004
3345120229	Parts and components for controls monitoring residential and commercial environments.....	31	(X)		193,698	(X)		177,607
3345130	Process control instruments.....	371	(X)	a/	7,496,612	(X)	a/	7,279,359
	General-purpose control system instruments (commonly called receiver-type), operating from standardized transmission signals (electrical types a.c. or d.c. milliampere, millivolt, or telemetering signals; pneumatic types, 3 to 15 and 3 to 27 p.s.i. signals):							
	Electronic systems - unified architecture type:							
3345130101	Controllers (recording, indicating, or blind)1/.....	26	a/	590,531	a/ 901,799	502,816		795,597
3345130106	Other unified electronic systems1/.....	20	c/	167,757	b/ 70,038	c/r/ 172,722	a/r/	65,242
3345130107	Auxiliary stations and analog computing devices associated with the above, including manual loaders, auto-to-manual stations, ratio stations, adders, multipliers, integrators, etc.	6	(D)	a/	229,644	(D)	r/	200,793
3345130109	Electronic systems - nonunified architecture type.....	35	(X)		848,956	(X)		753,624
3345130111	Industrial multifunction process computers.....	32	(X)	b/	242,816	(X)	a/r/	300,850
	Pneumatic systems, including all system-type control, display and computing instruments actuated from standardized pneumatic transmission signals:							
3345130127	Pneumatic systems and annunciators.....	19	(X)	c/	53,257	(X)	a/r/	44,018
334513022G	Other industrial type instruments.....	61	(X)	b/	589,317	(X)	a/	673,233
334513021F	Continuous process instruments.....	75	(X)	a/	819,468	(X)	a/	871,860
334513021V	Instruments for all process variables not listed above.....	32	(X)	a/	212,008	(X)	a/	235,715
334513032S	Parts for process control instruments.....	72	(X)	b/	348,386	(X)	a/r/	363,487
3345130240	Temperature measuring instruments: electrical and electronic measuring types.....	62	(X)	a/	260,067	(X)	r/	297,731
3345130248	Other temperature measuring instruments.....	42	(X)	c/	256,434	(X)	a/	226,585
	Primary temperature sensors, excluding aircraft types:							
3345130249	Thermocouples and thermocouple lead wire.....	43	(X)	b/	229,294	(X)	a/	222,648
3345130251	All other types (resistance temperature detectors, radiation and optical sensors, thermistors, etc.).....	47	(X)	b/	167,831	(X)	a/	175,578
3345130264	Pressure and draft measuring instruments.....	54	(X)	b/	574,754	(X)		501,504
3345130290	Flow and liquid level measuring instruments: differential pressure types.....	109	(X)	a/	1,672,173	(X)	r/	1,530,738
3345130293	Humidity instruments (controlling, recording, indicating and transmitting, and associated primary humidity elements, excluding home and general-purpose type)1/.....	9		26,272	a/ 20,370	27,961	a/	20,156
3353131	Power circuit breakers.....	37	(X)	b/	600,822	(X)		576,236
3353131101	Power circuit breakers (sold separately) for use in metal-clad switchgear, oil and oilless, over 1,000 volts, (number of breakers)1/.....	11	b/	7,827	a/ 72,857	b/r/ 7,487	a/r/	64,314
3353131103	All other power circuit breakers (sold separately).....	29	(D)	b/	461,748	(D)		462,528
3353131129	Parts for all power circuit breakers.....	17	(X)		66,217	(X)	r/	49,394
3353133	Low voltage panelboards, distribution boards, and other switching and interrupting devices, 1,000 volts and below.....	114	(X)	a/	2,725,735	(X)	a/	2,550,358
	Panelboards, including enclosing cabinets:							
3353133201	Fusible, including combination switch fuse.....	40	(D)	b/	108,140	(D)	a/	98,506
3353133104	Circuit breaker.....	75	(D)	a/	1,016,049	(D)	a/	924,178
	Distribution switchboards:							
3353133207	Fusible1/.....	22		23,340	a/ 100,429	r/ 22,631	a/r/	106,155
3353133211	Circuit breaker1/.....	49		269,602	a/ 582,055	263,666	r/	542,961
	Knife switches, enclosed:							
3353133216	Heavy duty1/.....	10	a/	1,593,671	207,303	a/r/ 1,543,496		193,067
3353133225	Circuit breaker type.....	7	(D)	b/	230,500	(D)	b/	242,434
3353133227	Other1/.....	8	b/	1,266,160	a/ 75,832	b/r/ 1,172,681	a/	65,280
3353133233	Other switches.....	33	(X)	a/	284,745	(X)	a/	253,879
3353133237	Other low voltage switchgear apparatus.....	25	(X)	a/	120,682	(X)		123,898

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[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2007			2006			
			Quantity		Value	Quantity		Value	
3353135	Fuses and fuse equipment, under 2,300 volts (except power distribution cutouts).....	21	(X)		370,672	(X)		364,498	
3353135109	Nonrenewable plug and cartridge fuses.....	14	(X)		(D)	(X)		(D)	
3353135113	Other fuses and open fuse material, including renewable, cutouts, clips, bases, etc.	15	(X)		(D)	(X)		(D)	
3353137	Molded case circuit breakers, 1,000 volts and under.....	42	(X)	b/	1,249,979	(X)	b/r/	1,142,606	
3353137105	Industrial type.....	38	(X)	a/	630,157	(X)	r/	557,196	
3353137112	Residential or light duty type.....	10	(X)		(D)	(X)		(D)	
	Other molded case circuit breakers:								
3353137117	Marine, Navy, aircraft and aerospace type.....	9	(D)	b/	156,710	(D)	b/	118,474	
3353137131	All other types, including automotive and electronic.....	14	(D)		(D)	(D)	c/	(D)	
3353139	Ducts, including plug-in units and accessories, 1,000 volts and under, consisting of enclosed sectionalized pre-fabricated bus bars rated 20 amperes or more and associated structures and fittings.....	17	(X)	a/	394,062	(X)	a/r/	304,544	
335313A	Switchgear (except ducts).....	113	(X)	a/	3,090,800	(X)	b/r/	2,944,722	
335313A101	Automatic and manual control panels (generators, transformers, feed-controls, etc.).....	54	(X)	a/	314,690	(X)		419,695	
335313A204	Metal-clad switchgear (using power circuit breakers, oil and oilless), all voltages above 1,000 volts, up to and including 38kV, excluding load interrupter switchgear.....	32	(X)	a/	810,904	(X)	r/	648,904	
335313A307	Metal-enclosed load interrupter switchgear assemblies, all voltages, including parts.....	28	(X)	b/	382,355	(X)	b/r/	343,561	
335313A311	Metal-enclosed low voltage power circuit breaker switchgear assemblies 1,000 volts and below, including parts and excluding load interrupter switchgear.....	23	(X)	a/	258,602	(X)	a/r/	307,465	
335313A313	Metal-enclosed bus bars when sold separately, above 1,000 volts, including isolated, segregated, nonsegregated and cable bus bars.....	10	(X)	b/	65,505	(X)	b/r/	34,319	
	Power switching equipment, 2,300 volts and over, including attachments, auxiliaries, bus supports and fittings, and accessories, but excluding power fuses, sold separately. Also includes single-phase circuit reclosers:								
335313A321	Indoor and outdoor, excluding structures.....	31	(X)	a/	620,093	(X)		587,661	
335313A332	Power and ground connectors, overhead transmission and distribution, all types.....	7	(X)		(D)	(X)		(D)	
335313A335	Power fuses, fuse links, and distribution cutouts.....	10	(X)		(D)	(X)		(D)	
335313A337	Other switchgear devices, including regulators and miscellaneous switchboard devices (for sale separately).....	20	(X)	b/	147,186	(X)		131,612	
3353141	General-purpose and other relays.....	78	(X)	b/	558,787	(X)	a/r/	617,696	
3353141101	Industrial-control relays (all voltages), n.e.c.	48	a/	7,979	a/	190,879	(D)	b/	240,371
	General-purpose electromechanical relays:								
3353141112	Over 100 MV and sealed.....	12	(X)		(D)	(X)		(D)	
3353141117	Over 100 MV and NOT sealed.....	10	(X)	c/	12,520	(X)	b/	18,798	
3353141153	High performance military/aerospace/aircraft relays and contactors (generally pertaining to Mil-\$5757, 6106, 19523, 25108, and 39016).....	5	(X)	b/	108,579	(X)	r/	107,908	
3353141180	Timing relays (timers).....	28	b/	2,863	(D)	r/	3,315	(D)	
3353141183	All other general-purpose and special-purpose relays, including parts.....	41	(X)	a/	177,993	(X)		175,080	
3353143	Specific-purpose industrial controls and power circuit devices.....	158	(X)	c/	3,179,919	(X)	b/	2,895,658	
3353143301	U.S. Coast Guard, Navy, and Marine auxiliary controls and accessories1/.....	18	c/	57,614	166,235	b/r/	47,818	a/	131,172
3353143307	Crane and hoist controls, constant and adjustable voltage, including operators' desks and stations1/.....	11	b/	55,201	138,965	b/	51,259		141,698
3353143311	Definite-purpose contactors and starters (600 volts and less).....	17	(D)	a/	14,003	(D)	r/		12,934
	Machine tool applications (motion controllers):								
	Stand-alone controls for numerically controlled machine tools:								
3353143317	Computer numerical controls (CNC).....	11	(X)	a/	193,137	(X)	c/		210,395
3353143323	Other stand-alone motion controls (include robotic controls).....	19	(X)	c/	201,513	(X)	c/		214,434
3353143328	Programmable controllers, sold separately.....	41	(D)	c/	1,047,767	(D)	c/r/		891,463

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Product code	Product description	No. of cos.	2007				2006			
			Quantity		Value		Quantity		Value	
3353143333	Other specific- or special-purpose a.c. and d.c. controllers, other definite-purpose devices.....	106	(X)	b/	1,418,299		(X)	a/	1,293,562	
3353146	General-purpose industrial controls and power circuit devices.....	196	(X)	c/	3,709,518		(X)	b/	3,626,592	
	General-purpose controls:									
3353146101	A.c. full voltage noncombination magnetic starters, 1,000 volts or less.....	26	b/	468	c/	45,055	b/	557	c/r/	51,276
3353146109	A.c. full voltage combination magnetic starters, 1,000 volts or less1/.....	19	c/	103,479	c/	49,705	b/r/	136,485	b/r/	59,867
3353146111	Disconnect switches, 600 volts or less.....	29	c/	573	a/	94,011	c/	584	a/	97,405
3353146117	A.c. full voltage manual controllers, 1,000 volts or less.....	12	(X)	b/	43,557		(X)			46,131
3353146123	A.c. contactors, 1,000 volts or less, excluding controls for packaged adjustable speed drives and synchronous motor controls.....	19	(X)	b/	59,315		(X)	a/		61,451
3353146131	Motor control centers, 1,000 volts or less.....	25	(X)	b/	336,808		(X)	b/		371,530
3353146137	Brakes and clutches.....	17	(X)	a/	124,132		(X)	a/r/		108,736
3353146142	Other general-purpose controls.....	30	(X)	b/	178,981		(X)	a/		193,344
	Limit switches (positioning sensors):									
3353146143	Electromechanical positioning sensors.....	16	(X)	c/	53,728		(X)	c/		51,907
3353146146	Movement sensors.....	18	(X)	a/	53,236		(X)	a/		49,120
	Solid-state positioning sensors:									
3353146149	Nonoptical proximity sensors.....	20	(X)	c/	69,794		(X)	b/		68,044
3353146152	Optical proximity sensors.....	22	(X)	a/	213,459		(X)	a/r/		226,493
3353146169	Pushbuttons, under 30mm.....	23	(X)		(D)		(X)	c/		35,612
3353146171	Pushbuttons, 30 mm and larger.....	28	(X)		29,142		(X)			29,868
	Controls for adjustable speed drivers, including electronic and nonelectric and operators' desks and stations:									
3353146176	Controls for a.c. packaged drives1/.....	32	c/	927,959	c/	640,990	c/	793,756	c/	523,159
3353146179	Controls for d.c. packaged drives1/.....	19	b/	186,307	c/	43,598	a/r/	179,922	c/r/	40,485
3353146182	A.c. drives systems1/.....	37	b/	65,351	c/	384,677	b/	55,150	c/	301,962
3353146185	D.c. drives systems1/.....	20		(D)		(D)	a/	721,314	c/	64,805
3353146188	Solid-state motor controllers (all voltages)1/.....	35	c/	668,902	c/	240,033	c/	650,774	c/	231,753
3353146192	All other general industry devices.....	95	(X)	c/	970,937		(X)	b/		1,013,644
3353147	Motor controller accessories and parts for industrial controls.....	88	(X)	b/	286,855		(X)	b/		358,313
3353147102	Motor controller accessories.....	41	(X)	b/	129,456		(X)	a/		181,432
3353147104	Parts for industrial controls.....	69	(X)	b/	157,399		(X)	b/		176,881

D Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified. r/Revised by 5 percent or more from previously published data. X Not applicable.

1/The quantity for this product code is in actual number of units.

Note: Percent of estimation of each item is indicated as follows: a/10 to 25 percent of the item is estimated. b/26 to 50 percent of the item is estimated. c/Over 50 percent of item is estimated.

Table 3. Shipments, Exports, and Imports of Control Instruments: 2007
[Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise 1/ (value at port)	Imports for consumption 2/
3345120102, 225	Temperature responsive automatic controls (thermostats).....	492,789	109,291	510,024
3345120115, 221, 224, 227	Pressure responsive automatic, hydraulic automatic, pneumatic automatic, and automatic control, n.e.c.	1,433,498	958,906	1,908,825
3345120229	Parts and components for automatic controls, sold separately.....	193,698	589,501	642,061
3353131101, 103	Power circuit breakers.....	534,605	69,692	48,920
3353131129	Parts for power circuit breakers.....	66,217	218,191	169,370
3353133104, 207, 211	Low voltage panelboards and distribution boards.....	1,698,533	(NA)	199,147
3353133216, 225, 227	Knife switches.....	513,635	277,420	623,727
3353133237	Other low voltage switchgear apparatus.....	120,682	17,296	33,030
3353135109, 113	Fuses and fuse equipment, under 2,300 volts.....	370,672	119,817	201,072
3353137105, 112, 117, 131	Molded case circuit breakers, 1,000 volts to 2,300 volts.....	1,249,979	774,762	502,087
3353139100	Duct, including plug-in units and accessories.....	394,062	52,904	(NA)
335313A101, 204, 307, 311, 313, 321, 337	Switchgear and switchgear assemblies.....	2,599,335	58,618	(NA)
335313A332	Power and ground connectors and transmission and distribution connectors, all types.....	(D)	114,819	94,679
335313A335	Power fuses, fuse links, and distribution cutouts.....	(D)	14,482	47,830
3353141101, 112, 117, 153, 180, 183	Relays.....	558,787	519,074	897,252
3353143328	Programmable controllers.....	1,047,767	646,558	763,122
3353146131	Motor control centers, 1,000 volts or less.....	336,808	132,390	265,371
3353146137	Brakes and clutches.....	124,132	44,483	89,871
3353146143, 146	Limit switches.....	106,964	19,144	(NA)

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified.

1/Source: Census Bureau report EM 545, U.S. Exports.

2/Source: Census Bureau report IM 145, U.S. Imports for Consumption.

Table 4. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2007

Product code	Product description	Export code 1/	Import code 2/
3345120102, 225	Temperature responsive automatic controls (thermostats).....	9032.10.0000	9032.10.0030 9032.10.0060 9032.10.0090
3345120115, 221, 224, 227	Pressure responsive automatic, hydraulic automatic, pneumatic automatic, and automatic controls, n.e.c.	9032.20.0000 9032.81.0080 9032.89.6020 9032.89.6085	9032.20.0000 9032.81.0080 9032.89.6015 9032.89.6025 9032.89.6085
3345120229	Parts and components for automatic controls, sold separately.....	9032.90.0000	9032.90.2000 9032.90.4000 9032.90.6020 9032.90.6040 9032.90.6060 9032.90.6080
3345130	Process control instruments.....	9032.81.0040 9032.81.0080 9032.89.6030 9032.89.6040 9032.89.6050 9032.89.6060 9032.89.6070 9032.89.6075	9032.81.0020 9032.81.0060 9032.89.6030 9032.89.6040 9032.89.6050 9032.89.6060 9032.89.6070 9032.89.6075
3353131101, 103	Power circuit breakers.....	8535.21.0000 8535.29.0020	8535.21.0000 8535.29.0020
3353131129	Parts for power circuit breakers.....	8535.29.0040 8536.20.0040	8535.29.0040 8536.20.0040
3353133104, 201, 207, 211	Low voltage panelboards and distribution boards.....	8538.90.8020	8538.90.8020
3353133216, 225, 227	Knife switches.....	8537.10.9050	8537.10.9050
3353133237	Other low voltage switchgear apparatus.....	8536.50.9045	8536.50.9045
3353135109, 113	Fuses and fuse equipment, under 2,300 volts.....	8535.10.0040 8536.10.0020 8536.10.0040	8535.10.0040 8536.10.0020 8536.10.0040
3353137105, 112, 117, 131	Molded case circuit breakers, 1,000 volts to 2,300 volts.....	8536.20.0020	8536.20.0020
3353139100	Duct, including plug-in units and accessories.....	8536.90.8010	8536.90.8010
335313A101, 204,	Switchgear and switchgear assemblies.....	8537.20.0020	8537.20.0020

Table 4. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2007

Product code	Product description	Export code 1/	Import code 2/
307, 311, 313, 321, 337			
335313A335	Power fuses, fuse links, and distribution cutouts.....	8535.10.0020	8535.10.0020
335313A332	Power and ground connectors and transmission and distribution connectors.....	8535.90.8040	8535.90.8040
3353141101, 112, 117, 153, 180, 183	Relays.....	8536.41.0005	8536.41.0005
		8536.41.0020	8536.41.0020
		8536.41.0030	8536.41.0030
		8536.41.0045	8536.41.0045
		8536.41.0050	8536.41.0050
		8536.41.0060	8536.41.0060
		8536.49.0050	8536.49.0050
		8536.49.0055	8536.49.0055
		8536.49.0065	8536.49.0065
		8536.49.0075	8536.49.0075
		8536.49.0080	8536.49.0080
3353143328	Programmable controllers.....	8537.10.9060	8537.10.9060
3353146131	Motor control centers, 1,000 volts or less.....	8537.10.6000	8537.10.6000
3353146137	Brakes and clutches.....	8505.20.0000	8505.20.0000
3353146143, 146	Limit switches.....	8536.50.9055	8536.50.9055

n.e.c. Not elsewhere classified.

1/Source: 2007 edition, Harmonized System-based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/Source: Harmonized Tariff Schedule of the United States, Annotated (2007).

HISTORICAL NOTE

The Census Bureau has collected data on switchgear, switchboard apparatus, relays, and industrial controls since 1971 on survey MA335A.

The Census Bureau has collected data on selected instruments and related products since 1961 on survey MA334B.

Beginning in 2005, data for MA335A, Switchgear, Switchboard Apparatus, Relays, and Industrial Controls, and a portion of MA334B, Selected Instruments and Related Products, will be published under the new survey MA334C, Control Instruments. Additional data for MA334B can be found on surveys MA334A, Analytical and Biomedical Instruments, MA334D, Defense, Navigational and Aerospace Electronics, and MA334T, Meters and Test Devices.

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